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# TES3000

Digital Tube Expanding System

Now with the new  
“fit-everywhere”  
motor: **S1-RA**



## TES-3000

This Digital Tube Expanding System features a range of powerful and efficient servo motors. Variable Speed and Torque repeatability +/- 1% are a few of the advantages of this system. Created for the demanding customer, this system ensures uniform tube expansion over a wide range of tube diameters and materials, greater efficiency and accuracy combined with ease of use make this system, simple, affordable and extremely fast.

### BASIC PARAMETERS

- › Power supply:
- › TES 3000: 400V 50/60Hz
- › For tubes: ½" – 1 ½"
- › Control unit weight: 14 kg
- › Footswitch weight: 5 kg
- › Dimensions: 800 x 200 x 900 mm

### MAIN TES FEATURES

- › Purely digital and modular system.
- › High tech servo drive and motor assure accuracy, high quality and repeatability of the results and efficient work.
- › Extremely easy and user friendly interface on 7" touch screen.
- › Supported languages: English, Korean, German, Spanish, Portuguese, Chinese, Polish.
- › USB Flash Drive available to dump expanding log files (48 MB of internal storage space for the log files)
- › Easy software upgrade with USB flash memory
- › CE compliant. In full accordance with RoHS compliance.
- › Motor equipped with EnDat encoder.

### TES-3000 SPECIFICATION

Colors	65536
Resolution (W x H)	800 x 480
Back Light	LED
Processor	Cortex A8 600MHz
Touch Panel Type	4 wires resistive type
Storage	128 MB Flash
RAM	128 MB
USB Host	USB 2.0 – software updates, dump the log files
CE	Complies with EN 55022:2006, Class A, EN 61000-3-2:2006, EN 61000-3-3:1995 + A1:2001 + A2:2005 standards
UL	E248297
Protection Structure	IP65 front panel
Storage Temperature	-20°-60°C (-4°-140°F)
Operating Temperature	0°-50°C (32°-122°F)
Operation Humidity	10-90% RH (non-condense)



Special designed body shape for convenient of operator

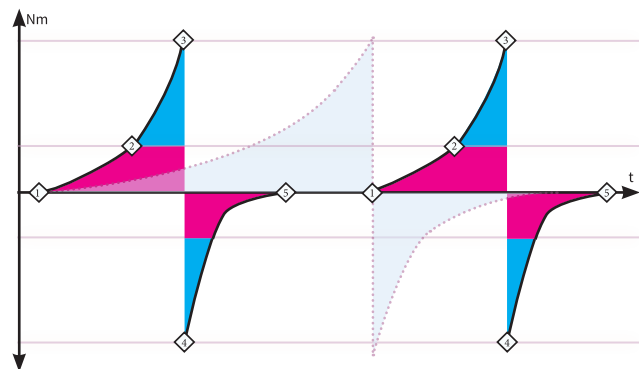


USB host for easy software upgrade to latest version.



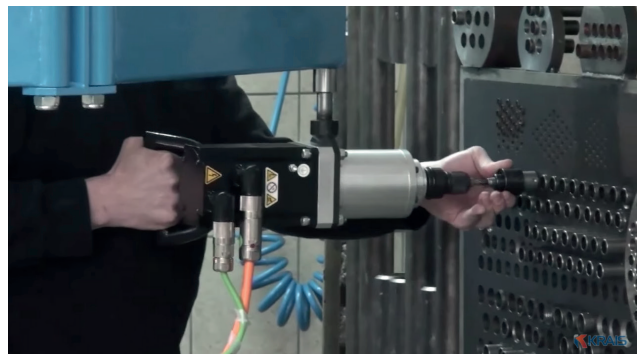
TES units are equipped with top quality connectors.

### SERVO DRIVE WORKING SCHEME



■ High speed; ■ Variable speed; ■ Constant speed  
— Servo drive rolling; ..... Traditional rolling




### TES3000 AND B2 SERVO DRIVE





## MOTORS FOR TES-3000

We offer a full range of motors, you can choose a proper one that fits your needs. Each motor is equipped with one of 5 of the gear boxes. Each with protection level IP56.

DRIVE		PHASE VOLTAGE	WEIGHT	MAX RPM	TORQUE (WITH TES-3000)			
					NM		FT.LB	
					MIN	MAX	MIN	MAX
	<b>S3000</b>	3/400V	5,0 kg	3000	0,2	2,5	0,10	1,80
	<b>S6000</b>	3/400V	5,0 kg	6000	0,2	2,5	0,10	1,80
	<b>S5</b>	3/400V	5,0 kg	1662	0,4	8,6	0,20	6,30
	<b>S4</b>	3/400V	5,0 kg	1500	0,5	9,5	0,30	7,00
	<b>S3</b>	3/400V	5,0 kg	1091	0,6	13,0	0,40	9,50
	<b>S2</b>	3/400V	5,0 kg	800	0,9	18,0	0,60	13,20
	<b>S1</b>	3/400V	5,0 kg	600	1,2	24,0	0,80	17,70
	<b>S1-RA</b>	3/400V	6,5 kg	320	2,2	45,0	1,62	33,0
	<b>S2-RA</b>	3/400V	6,5 kg	425	1,7	33,0	1,25	24,0
	<b>S3-RA</b>	3/400V	6,5 kg	580	1,1	24,0	0,81	17,0
	<b>S4-RA</b>	3/400V	6,2 kg	797	0,9	17,0	0,66	12,0
	<b>s5-RA</b>	3/400V	6,2 kg	884	0,7	16,0	0,51	11,0
	<b>B5</b>	3/400V	8,0 kg	1453	1,8	27,0	1,30	19,90
	<b>B4</b>	3/400V	8,0 kg	1000	2,6	39,0	1,90	28,70
	<b>B3</b>	3/400V	8,0 kg	736	3,5	53,0	2,50	39,00
	<b>B2</b>	3/400V	8,0 kg	400	6,5	92,5	4,70	68,20
	<b>B1</b>	3/400V	8,0 kg	300	9,0	123,0	6,60	90,70
	<b>G1455</b>	3/400V	9,0 kg	1453	2,3	70	1,6	51,6
	<b>G1000</b>	3/400V	9,0 kg	1000	3,4	102	2,5	75,2
	<b>G400</b>	3/400V	9,5 kg	400	7,5	240	5,5	177

### MOTOR WHICH “FITS EVERYWHERE”

KRAIS Sx-RA is the series of compact, high customisable servo-controlled tube rolling motors.

The compact body, with a pistol grip, right-angle rolling motors are excellent for use in tight and hard to reach places with standard rolling motors. An especially places like tube sheet placed deep in the shell/partition or a condenser in desalination plant with tube sheet opposite to the wall. Like all KRAIS servo motors – this unit assures differences less than 1% in repeatability of torque control. The convenient pistol grip can be position in 3 ways to suit the application and operator preferences. The pistol grip – for a better control – works as the hand switch with two triggers: for manual operation and emergency button. The machine is equipped with suspension for balancer.



### MANY CUSTOM CONFIGURATIONS

Pistol grip at left side



Pistol grip at back



Pistol grip at right side



Pistol grip at left side with handle on bottom



Pistol grip at back with handle on bottom

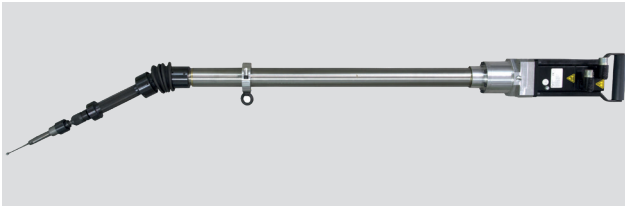


Pistol grip at back side with handle on left



... plus many more, which can fit in all tough locations!

### TELESCOPIC SHAFT



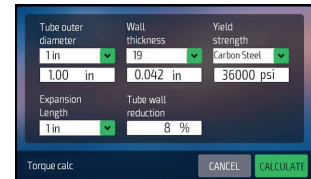
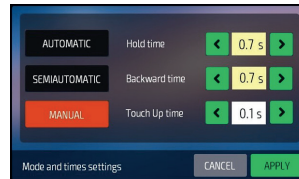
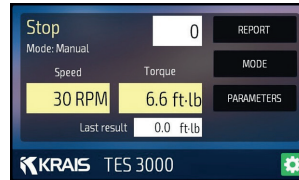
Optional telescopic shaft for motors G-1000, G-400 and G-1450

### FLEXHOLDER

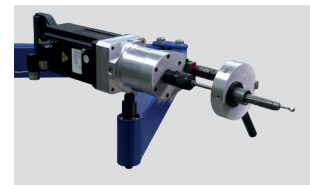
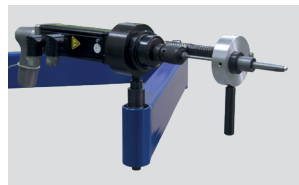
To work with TES3000 controllers we recommend arm FlexHolder. This connection allows you to create a mobile workstation with an above average performance!



### TES-3000 SOFTWARE



- › Friendly interface and large touch screen allows to configure different motor types with their predefined min/max values and to set up required expanding parameters.
- › Torque Wizard helps to calculate torque settings based on: %wl reduct, Feed Angle, Mandrel taper, Tube Diameter, Tube Yield (Ultimate tensile strength), Wall Thickness (Gauge, Expansion Length)
- › 3 operating modes available: MANUAL: Single expansion, SEMIAUTO: Single expansion with autorevers, AUTO: Expansion with autorevers in endless loop until operator stops
- › Configurable expanding timers: reverse rolling time, time between expanding cycles (to move expander from one to another tube), time to expand with maximum rpm in the initial expanding phase
- › Other features: Expanding counter, Color status lamps, Metric and imperial units available, Translated to many languages.



### TES-3000 DUO

- › Two-channel main unit controlling the operation of two motors independently.
- › Two high tech servo drives assure accuracy, and repeatability of the results and efficient high-quality work.
- › Independent, precise torque control for both rolling drives for proper expansion
- › Anti-tension simultaneous revers of both expanders (finishing drive is always waiting for second one)
- › Easy, user-friendly software on 7" touch screen.

